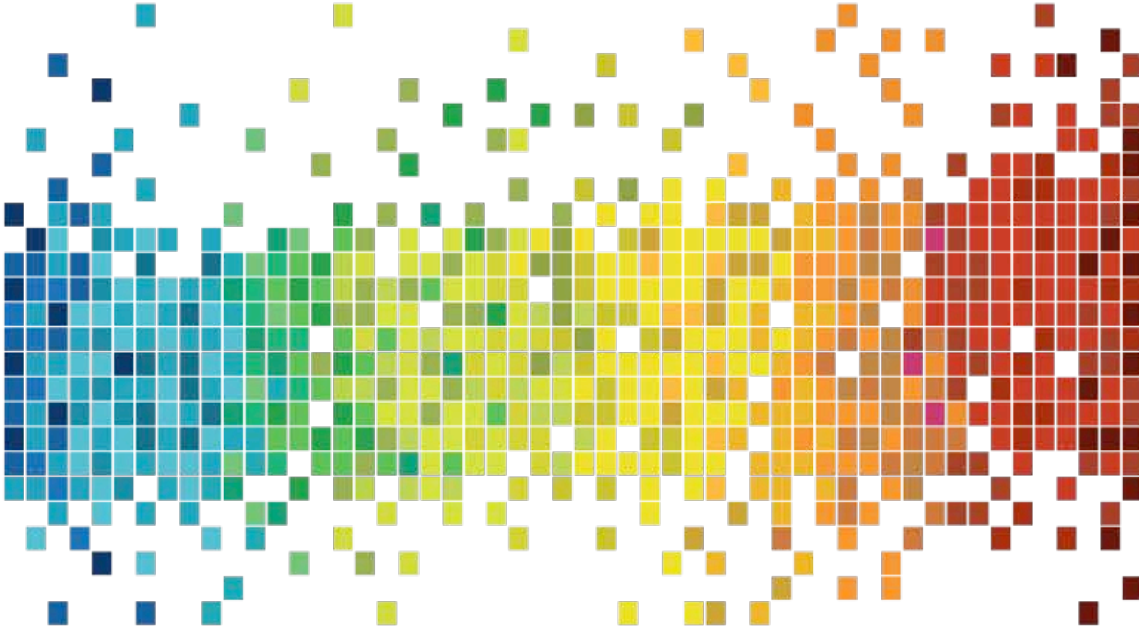
Digital Living



Edited by Paloma Díaz and Elisa Giaccardi with the collaboration of Steffen Lohmann

Digital Living: Report of the Workshop on Digital Living
"Creatividad e Innovación en el Mundo Digital"
Editors: Paloma Diaz and Elisa Giaccardi with the collaboration of Steffen Lohmann

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About This Report

The workshop "Digital Living: Creatividad e Innovación en el Mundo Digital" was held on March 5-6, 2010 with the goal to develop a set of recommendations that will help plan the basic structure of a new Masters Program to be offered at the Universidad Carlos III de Madrid (UC3M), starting in the fall of 2011. A total of 25 international experts from academia and industry participated in the workshop (including 7 members of UC3M). The workshop was held at the Getafe Campus, and was co-organized by the Institute of Culture and Technology (ICyT) and the Interactive Systems Lab (DEI).

This report is the result of that workshop. It is not a record of the discussions held, but a distillation, an effort to capture the essence of what concerned and excited participants, as they considered the educational challenges of a possible 'digital living' paradigm. It describes how to attract and retain students from different backgrounds, and how to get them to talk to each other and collaborate. It illustrates the possible strategies and pedagogical tools to create a robust yet flexible curriculum. It explains how to balance theory and practice, and the importance of being 'grounded' in the local as well as the global community.

As is unavoidable, this report cannot comprehensively include all the issues raised by the participants at the workshop. While we have attempted to represent, as much as possible, the views of the participants, the report's main purpose is to provide a list of recommendations that can entice readers, including ourselves, to reflect upon the challenges and opportunities of a transdisciplinary Masters Program in 'Digital Living'. If it can further highlight the importance of promoting human-centred approaches to the design of the next generation of digital media and systems, so much the better.

We would like to thank: all the participants, who provided invaluable knowledge, experience and enthusiasm for the topic; Teresa Onorati and Steffen Lohmann, who helped organize the event; Carmen

Cuellar for local support; Alex Jaimes for advice and assistance; Mary Beth Rosson for helping with editing; Elisa Giaccardi for creating the book design; and Ignacio Aedo, who facilitated the event in all the ways possible *and* impossible. Finally, a special thanks to the director of the Institute of Culture and Technology (ICyT), Antonio Rodríguez de las Heras, who sponsored this event and supported it.

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General Introduction

We are surrounded by technology. We live with technology in the privacy of our homes as well as in the public spaces we share at work or during our leisure activities. We live in a digital world where technological advances take place more quickly than ever. It is hard to stay abreast of all technologies. At times, it is hard even to discern when we are interfacing with technology and leaving digital footprints. The core of this revolution is not technology per se but the use we make of it in order to open up new interaction spaces and broaden our experience of reality.

Scope of the Masters Program

The goal of the Masters Program in Digital Living (in the following referred to as the DL Master) is to provide a transdisciplinary course for graduates from various disciplines, in particular computer science and the humanities, to develop human-centred approaches to the design of the next generation of digital media and systems. Students should acquire the kind of knowledge, attitudes and skills that will allow them to creatively and actively pursue new roles and contexts as researchers, designers, and facilitators at both the academic and industry level. The program will last 2 years, consist of 60 ECTs per year (120 credits in total), and be taught in a bilingual fashion, using both Spanish and English.

Target Students and Careers

This transdisciplinary program aims to attract students with different backgrounds but a common interest in the socio-cultural applications and implications of digital technology. The program offers students who arrive with either a humanistic or a technical background the opportunity to acquire the sensitivity, knowledge and skills that will allow them to generate critical thinking and creative action, and pursue new contexts and roles for digital technology in society, and in the job market of the future.

Workshop Topics

The grounding questions of the workshop concerned thoughts about a transdisciplinary core, a research and education agenda, and proposals for the integrated teaching structure and contents of such a MSc program. UC3M is strategically located for this initiative, as both its geographical position (the Mediterranean rim) and its linguistic base (Spanish language) place it between different cultures, lifestyles and worldviews. Additional questions concern the role that a bilingual university such as UC3M can play in the global context of emerging digital cultures and markets.

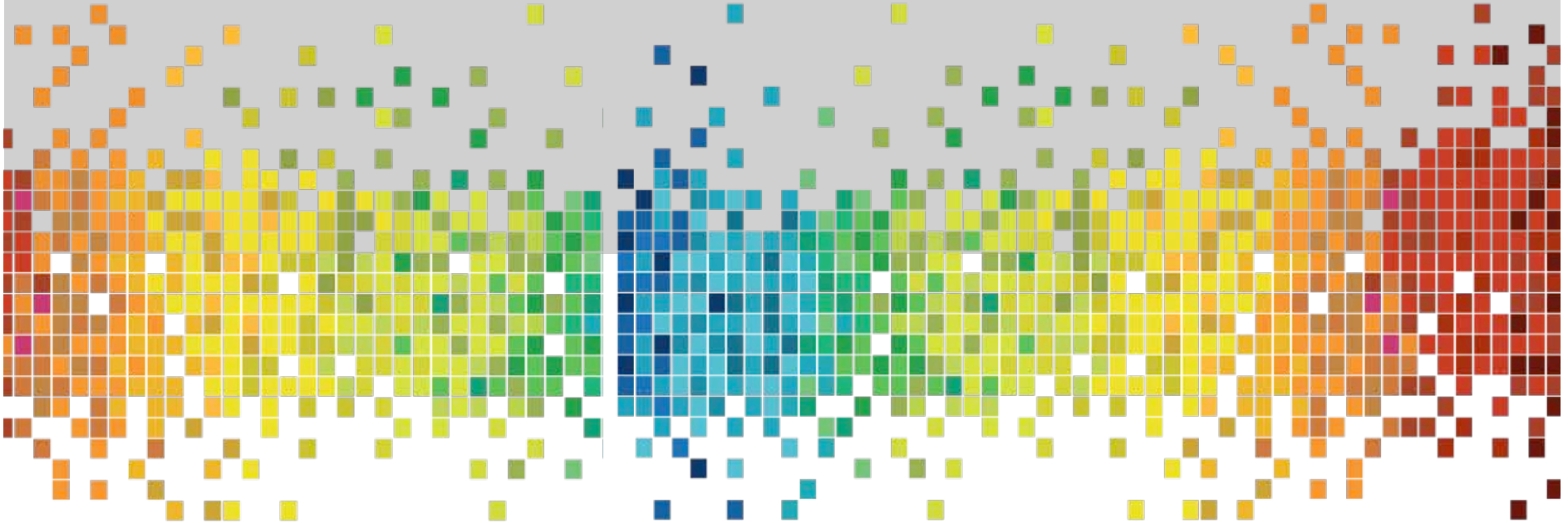
Recommendations

This part of the report is organized as a list of recommendations, and resulted from a distillation of the discussions held by workshop participants. These discussions helped us reflect further on the transdisciplinary and cross-cultural orientation of an educational enterprise such as the DL Master. The discussions also emphasized the importance of liberal arts within a conception of design as cultural intervention, and the need for people-centered approaches. Last but not least, these discussions stressed over and over the criticality of flexibility and reconfigurability at all levels—from physical spaces, to the faculty, to the curriculum—and highlighted the need for a methodological and ethical 'grounding' in place of research, teaching and learning. We think that the motto "Think broadly, act specifically" is a useful synthesis of many of these discussions.

We have articulated our recommendations in three sections. The first one focuses on how to attract and retain students with different backgrounds, and how to develop a common ethos and identity among DL Masters students. The second section focuses on how to develop the competence that students will need to acquire to critically and creatively engage in the digital world. Finally, the third section focuses on related pedagogical strategies.

1. What Students?

Designing a transdisciplinary Masters Program that fulfills the promise of fostering social and technical innovation by teaching the critical and creative skills necessary for 'digital living' is clearly a big challenge. Making the program worthwhile for both students and their future employers is an even bigger challenge, and an important responsibility. Anyone designing such a curriculum would want bright, ingenious, and resourceful students who can embody and promote the vision. The challenge is not only to get the right students and future alumni, but also whether you can guide your students in the journey needed to target and refine, day by day, the set of knowledge and skills that will end up characterizing your program, and making it unique. In this section, we comment on the attitudes that successful students should exhibit and develop, and on the knowledge and skills they should acquire and reinforce through the DL Master. We begin with a set of recommendations for how to get and retain students with the right mindset and desirable skills.

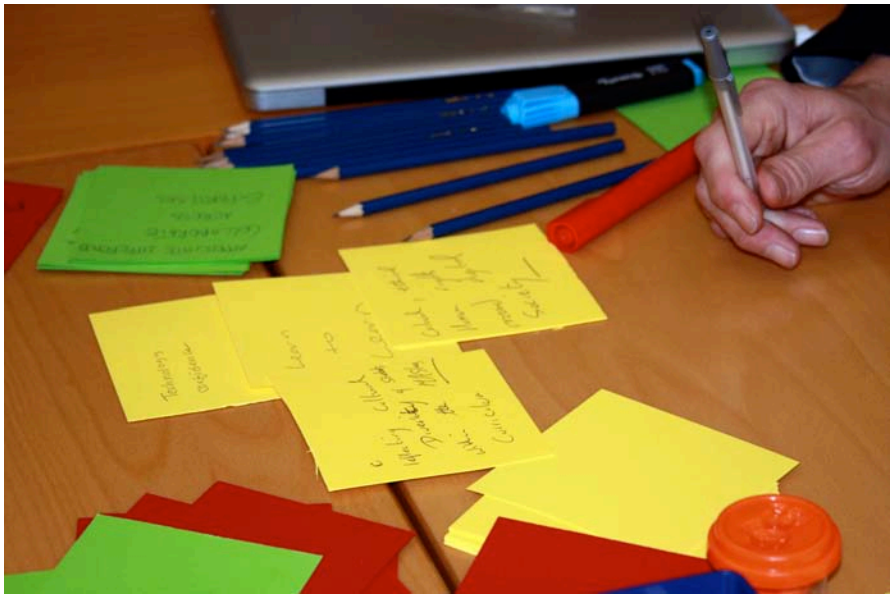


Attract and enroll the right students

Consider prior knowledge and skills. Attracting and enrolling the right students is not a trivial recommendation—it is critical. Regardless of the outcomes that you are expecting, students' results will depend upon their educational and professional milieu. Because we expect that students from different backgrounds will apply to the DL Master, we also expect their program outcomes to vary. It is important to be aware that these outcomes will depend upon not only the specific courses that students will select from the program, but also their prior knowledge and skills.

Consider attitudes. Similarly, it is important to be aware that attitudes are mostly a matter of screening. Of course, we want students in 'digital living' to be not afraid of technology, to be able to develop an open mind, and ultimately to be "able to learn and quickly adapt". Ultimately, though, we will have to ask ourselves: What does the student know? How does the student know what she knows? And even more importantly: Why does the student know what she knows? This will help identify students with the right orientation, who are able to share a similar commitment and passion about changing society through technology.

Set up flexible entry requirements. Specifying an appropriate set of entry requirements for the DL Master will be crucial. Entry requirements need to establish what are the desirable knowledge and skills that prospective students should exhibit. For example, students should possibly have some skills in framing and solving problems, and



show some creative abilities. However, entry requirements should be flexible enough to accommodate unusual backgrounds. One possibility would include a portfolio as part of the requirements, rather than making prospective students check a box to reprot their formal educational background—or failing to find the right box during their enrollment applications! A portfolio would enable educators to assess a prospective student's actual skills and competence, and opportunistically match them to the expected yet evolving outcomes of the DL Master. There could be a list of attributes considered desirable for the portfolio, and a minimum number of attributes to be matched. For example, a list of attributes could be creativity, enterpreneurship, empathy, critical thinking, and so on. If 4 or 6 of these attributes are matched, then the portfolio of the prospective student would satisfy this part of the entry requirements.

Know your percentage rate. Another important consideration is to decide up front the desired percentage rate of students who are likely to do research after graduation, versus those that will seek employment in industry. It is usually recommended a 80-20 percentage rate between research and industry, and a proper targeting of courses and academic or professional experiences. Assuming that the percentage rate will be 50-50 is a recipe for failure.

Promote accordingly. Based on the prevoius two considerations, the final recommendation is to carefully craft how the DL Master will be presented and promoted among prospective students and in general to the public.

United by a common 'ethos'

Similar beliefs and aspirations. All faculty and students should share a common 'ethos.' Besides a shared understanding of what the DL Master is about, students and faculty should be united by similar attitudes and manifest similar beliefs and aspirations. For example, students should value the richness that comes from the different disciplinary backgrounds and knowledge of other students, as well as their different nationalities and cultural milieus. They should also be open to novel learning methods, and enjoy collaborative learning activities. Importantly, students should learn to consider themselves as critical and engaged members of society, and act accordingly during their studies. Such a common 'ethos' should gradually develop through engagement in practical activities and end up wrapping the competence that students will mature through the DL Master.

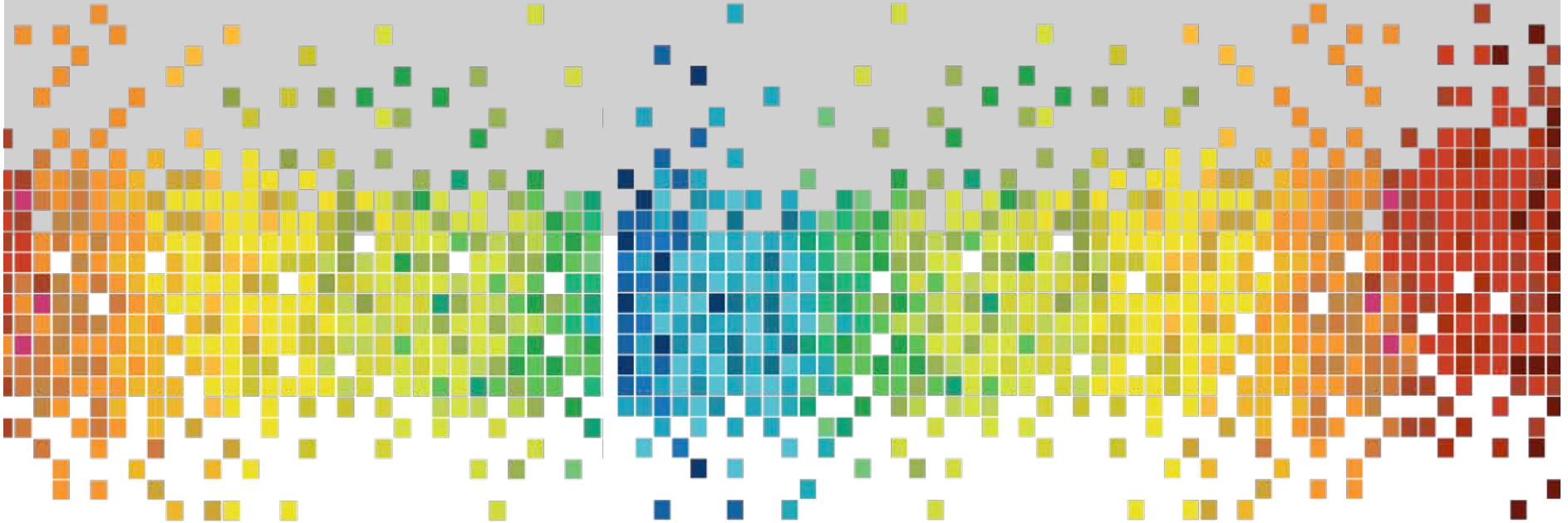
Tune students in. In order to create a 'we-feeling' in the DL Master early on, it could be useful to organize an orientation week at the beginning of the studies, during which mature students tutor new students and encourage them to engage in several social activities. It could also be useful to assign an interim advisor to students upon enrollment for the first semester. Additionally, introduction seminars could be organized and led by 2-3 faculty members at the beginning of each quarter of the semester or even just once a year. The point is that it is important not only *who* you bring together, but also *how* you bring them together.

A Mediterranean identity

The DL Master should reflect international diversity. As previously commented, faculty and students should value the richness that comes from different nationalities and cultural milieus as an important element of a shared 'ethos.' But it is also important for the DL Master to foster a Mediterranean identity and somehow reflect the cultural context in which the program is embedded through the curriculum. This identity might be reflected in the values, topics, and methods promoted in the DL Master or in exploratory themes of specific courses. It might be interesting to identify and upack 2-3 design dimensions related to Mediterranean culture and life. For example, one of these design inquiries could be about the nature and quality of time in Mediterranean cultures, and related lifestyles of conviviality, listening, and slow food.

2. What Competence?

What does it take to become competent in 'digital living'? It requires 'learning about' and 'learning to be'. The competence necessary to critically and creatively engage in a world made more interconnected and more complex by digital technologies must develop through a course of studies oriented at teaching students how to continuingly learn new computing skills, how to think and inquiry "designerly," and how to ethically engage with different communities and human geographies. In this section, we comment on the critical and practical competence that students of the DL Master should acquire during their studies, and provide general recommendations for how such competence can be achieved.



Teams that are hands on with minds on

Students should acquire critical and practical competence with respect to the 'subject matters' and 'objects' of digital living. They should learn to analyze and 'critique' texts, products, and the many infrastructural layers of digital living (e.g., legal, technical, political, social, cultural, historical, economic). They should also learn to explore and 'create' with different materials, diverse digital components (including software) and especially with limited and novel resources. Students should also learn to critique and create *collaboratively* in problem-based situations, so to that diversity can flower in a way that students reinforce each other, and new knowledge spaces can open up for discourse and intervention.

An open faculty

To achieve such competence, the DL Master should follow an 'open faculty' model, where different departments collaborate in teaching and research. As mentioned in section 1 with respect to student enrollment, it will be important to consider where teachers come from and what pedagogical approach they bring. It will be equally important to ensure that the content of their courses has been adapted to the scope and objectives of the DL Master and not simply transferred as-is from previous courses in their parent departments. One question has been raised with respect to the lack of a design department at UC3M. Where will design expertise come from? An alternative to 'traditional' design expertise might entail bringing

forward the humanities aspect. This approach would call for a reflection upon what it takes to teach students to be engaged and productive citizens in the digital world. More specifically, it would mean to consider how engaging students in "research-through-design" activities as part of the pedagogy would be different from teaching them to be professional designers.

Robustness and flexibility

A flexible curriculum. The curriculum should be flexible and yet robust enough to allow students to acquire basic skills related to 'digital living' and specialize, while building on their individual background, previous knowledge, and skills. A curriculum structure consisting of core modules and additional, selective modules is crucial for a successful implementation of the DL Master, as it has the advantage not only to promote "overlapping patterns of unique narrowness" (Campbell, 2005) but also to remain adaptable to future trends and evolutions.

Reconfigurable environments. The physical environment should be flexible too. Physical space should be easily reconfigurable to accommodate and encourage social interaction and flexibility of use. This should be the case for workspaces as well as lecturing spaces.

Dedicated educators. The development of the competence required of students in the DL Master demands dedicated support both from faculty and staff. This support is technical as well as disciplinary. For example, the DL Master should have a core staff of 5-6 dedicated people between faculty and staff, whose job is to promote activity at

the cross-section of disciplines and technologies, helping students and faculty at large develop and share a common ethos toward research and applications of societal relevance.

Bring students up to speed

Leveling courses need to be offered in the first year to bring everybody up to speed on the same common ground. For example, the first year could be seeded with interesting artifacts to analyze and deconstruct. 'Modding' and other similar strategies could be identified and used to create 'enchantments' that attract students to non-familiar areas of expertise and also help them better understand their peers' knowledge and skills. However, identifying each student's individual qualities and fostering these during the course of studies of the DL Master should have the highest priority. This requires that applicants are screened and pointed to their appropriate learning path as early as possible.

Get students to talk to each other

Social activities should generally be offered during the whole course of studies on a regular basis to maintain and foster the 'we-feeling' of a common ethos also outside of the teaching and learning activities of the program. Social activities should be promoted, for example also through social networking tools, because they provide spontaneous ways for students to share a common language and for knowledge to naturally 'suck in.

Get students to ‘engage’

Becoming competent in ‘digital living’ means learning how to frame and address problems of societal relevance, as well as how to listen and respond as an active participant. Students should be encouraged to engage with the real world and in particular their reference communities through sociological and anthropological research methods, including ethnography and social action, and methods of public accountability, including demos and exhibitions, and also territorial contexts where to pursue research and innovation processes, including living and embedded labs.

Get students to know themselves

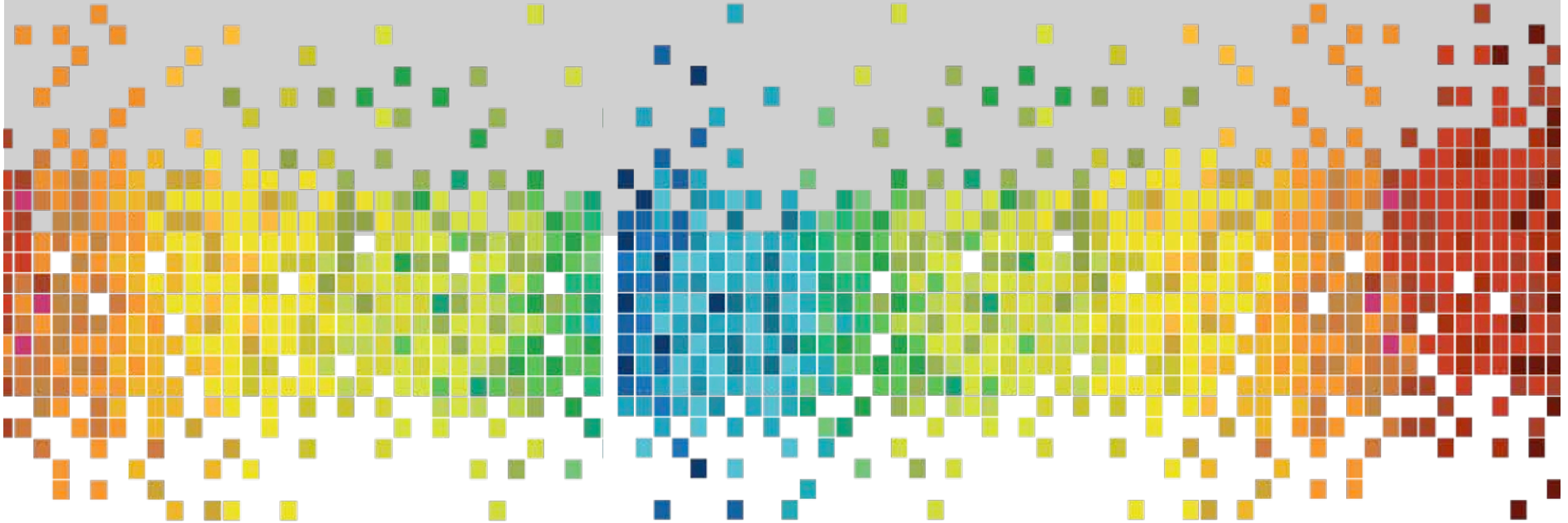
Becoming competent in ‘digital living’ also requires students to know themselves. Students should be able to recognise their knowledge and skills, know what these are useful for and how to express them, so that they can better ‘sell’ themselves in a project and in a market where changes are rapid. But knowing yourself is also the glue that combines (a) learning to know (by building bridges among different disciplines and practices); (b) learning to do (by acquiring a profession, but also a flexible mindset); (c) learning to be with others (by accepting plurality, but also respectfully standing for our convictions); and (d) learning to be (by discovering how we have been conditioned, and testing the foundations of our convictions). Because things around us change, so do we.

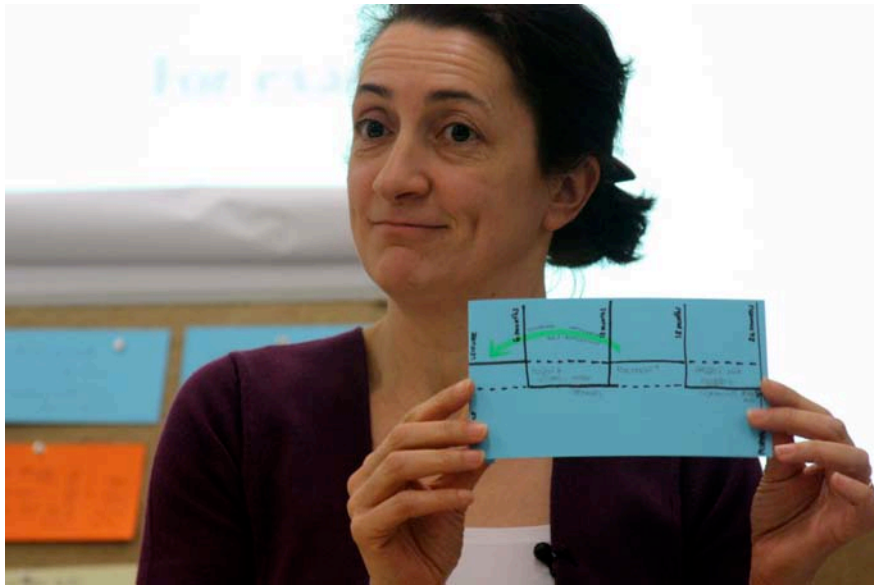
Teach also soft skills

Teaching ‘soft skills,’ including communication, debating, scientific writing, professional correspondence, project management, is critical for students that will have to actively pursue new roles and contexts as researchers, designers, and facilitators at both the academic and industry level. For example, short courses could be taught just once for 2-3 days or 1 week or even ad-hoc.

3. What Pedagogical Strategies?

Digital living also requires learners to learn from each other. This skill can be developed by considering students and faculty as co-apprentices in situations in which both can participate with their knowledge and expertise. But learning from each other also means to be 'grounded' in place, whether your local or larger community, and be publicly accountable. In this section, we comment on how these concerns may shape the structure of the program, and what useful pedagogical tools can be envisioned in support.





Balancing theory and practice

Although theoretical lectures are a necessity for a qualitative academic education, practice-based collaborative activities should form a large part of the DL Master. For example, more lecturing could be offered in the first year of the program, and more project work in the second year. This would also be the case for basic/advanced (or elective) classes. The result would be a balancing of the curriculum, with an increasing level of practice and specialization.

Students and faculty as co-apprentices

Faculty and students should learn from each other as co-apprentices. As previously commented, the DL Master requires faculty and students to continuously 'learn about' and 'learn to be'. Possible methods include co-teaching, collaborative learning, and peer-mentoring.

Co-teaching. Two lecturers provide students with different viewpoints of the same course content—ideally not as alternate lectures, but as parallel discourse.

Collaborative learning. Taking into account the qualities of "digital natives", some students can be particularly skilled with certain digital technologies, and might be ideal teachers themselves in those contexts.

Peer-mentoring. It can take many forms. For example, students tutor peers with different backgrounds and/or present their "previously acquired" skills to class. Additionally, second-year students council and share experiences first-year students.

Teaching as context

Seminars and workshops. Seminars are important to reflect on modern phenomena and broaden students' understanding. Similarly, workshops can be critical to integrate teaching and research. For faculty, workshops can represent a space where teaching is not regarded as a 'function' but as a 'context' in which teachers participate with their expertise and knowledge. Additionally, practitioners or experts can be brought in for shots of specific domain knowledge required by projects through artist-in-residencies and invited talks.

Projects and internships. Student projects are important in that they require a combination of skills, including soft skills, and help develop them further. Additionally, internships expose students to the professional world and help them create possible contexts for their future careers. One internship should be sufficient, but students' experience will need to be supported and facilitated. This will require for the DL Master staff to setup related activities and to connect with organizations and companies early on, so that students can make informed decision about possible venues for their internship.

Grounded in place

Embedded labs. Everyday outreach and a sense of 'grounding' are critical to digital living. Whenever possible, teaching and learning should be brought outside of closed labs into public spaces or 'embedded labs.' Madrid as a city and community offers great opportunities to serve as a kind of living and embedded lab, also for collaborative projects with local organizations. Students must have the feeling they are really going to study *in* Madrid. Embedded projects are keystone to connect and engage with the community. Creating embedded labs has many benefits, as it helps students to assess their ideas in the real world and explore new working relationships, but it requires a lot of effort both to set them up and to keep it up.

Public accountability. Another way to bring the DL Master outside of the walls of the campus and making it 'porous' is to conduct and present research in publicly accountable settings. For example, demos and exhibitions could be used to practice presentation skills, disseminate and advertise the DL Master within the larger community, and recruit future students in public venues and settings. The richness of the theatres in Madrid would seem to represent the ideal ground for a cultural experiment.

Criticality of the portfolio

In the need for new methods to assess activities and participation, portfolio work should be critical for DL Master students. A portfolio is not only part of the entry requirements, but also an important

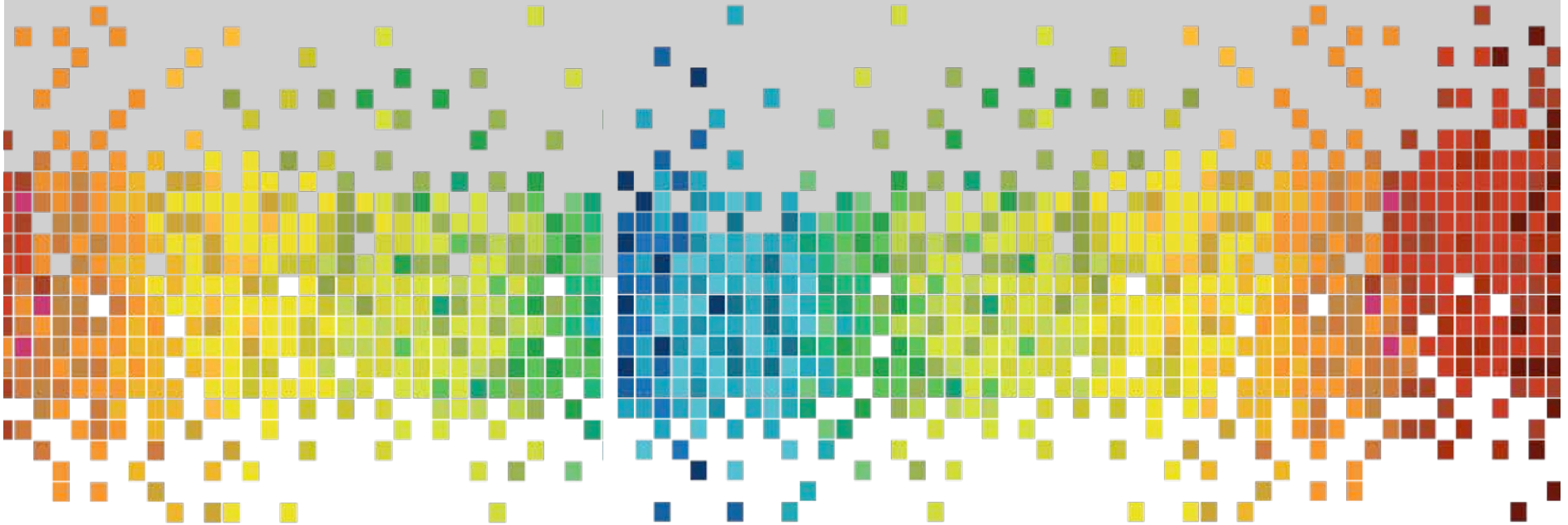
pedagogical tool with which to experiment, deciding what gets in (e.g., outcomes of classes, capstone projects, blogs, embedded labs) and how it gets evaluated. Portfolio work would be graded, whereas foundational courses could follow a simple 'fail/pass' criterion.

Three Possible Models

This part of the report summarizes the final session of the workshop, where participants condensed and refined their earlier discussions into three possible models for the DL Master. All of the models reflect and instantiate the general set of recommendations that we have distilled in the previous part, but each of them emphasizes a different set of concerns and objectives, proposing a different organization of courses and activities.

1. The Studio Model

This model emphasizes the importance of practice-based activities and the centrality of the studio as the place where to practice, socialize, and 'grow.'



According to this model, there is a link between lectures and studio work, but the studio activities should increasingly take control over what students are doing, helping them to develop their skills, knowledge, and unique competence in the context of the group.

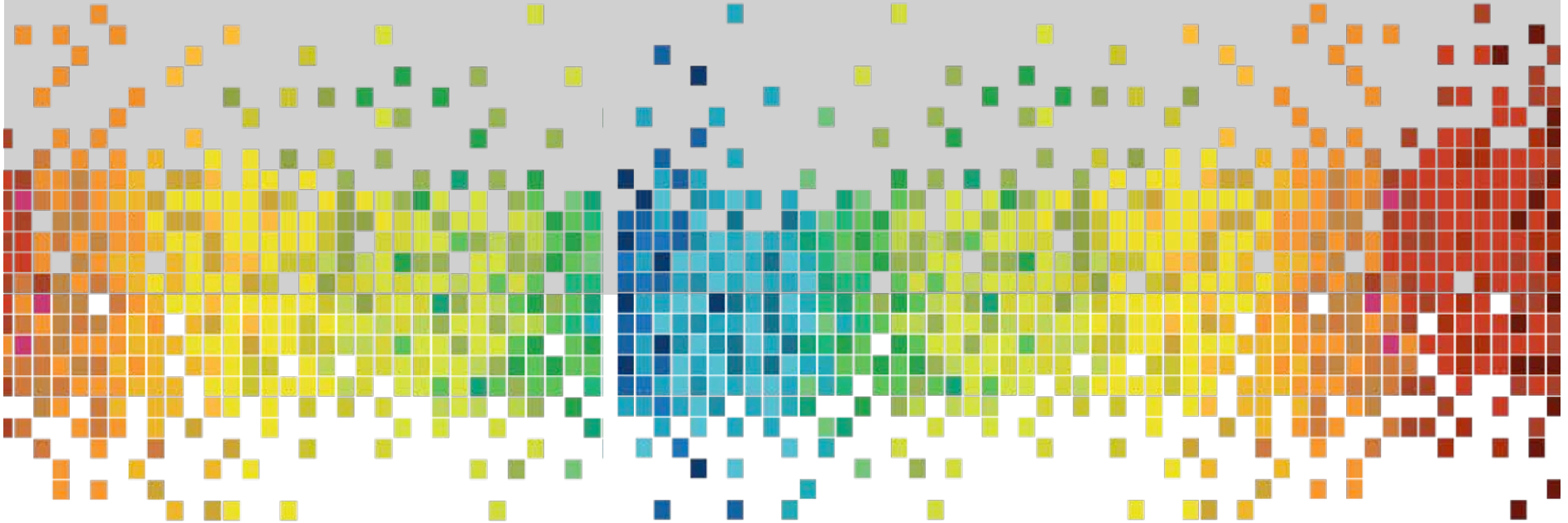
Connected to this approach, the first year would focus on seminars and other “traditional” courses, whereas the second year should mainly be oriented to project-based and collaborative work. This final year would be more open and malleable, and allow students (while still supervised) to have more control over their learning processes.

Linked to this approach is also the idea of an ‘evolving portfolio’, which might even represent the actual final thesis. This model is reinforced by activities meant to promote bonding and help students to keep up. For example, an initial orientation week could help students coming from different countries and different backgrounds to get to know each other as well what the university procedures and support structures are.

The program should offer soft skills courses, including in this case also language courses, and the possibility of remedial courses in the first year.

2. The Resourceful Model

This model emphasizes the importance of resourcefully and artfully integrating critical thinking and creative activities.



According to this model, the program would be based on three basic pillars: analysis, synthesis, and articulation. Courses, workshops, and activities would be fundamentally grouped around these three main components. In practice, students would start creating things and 'get their hands dirty' from day one.

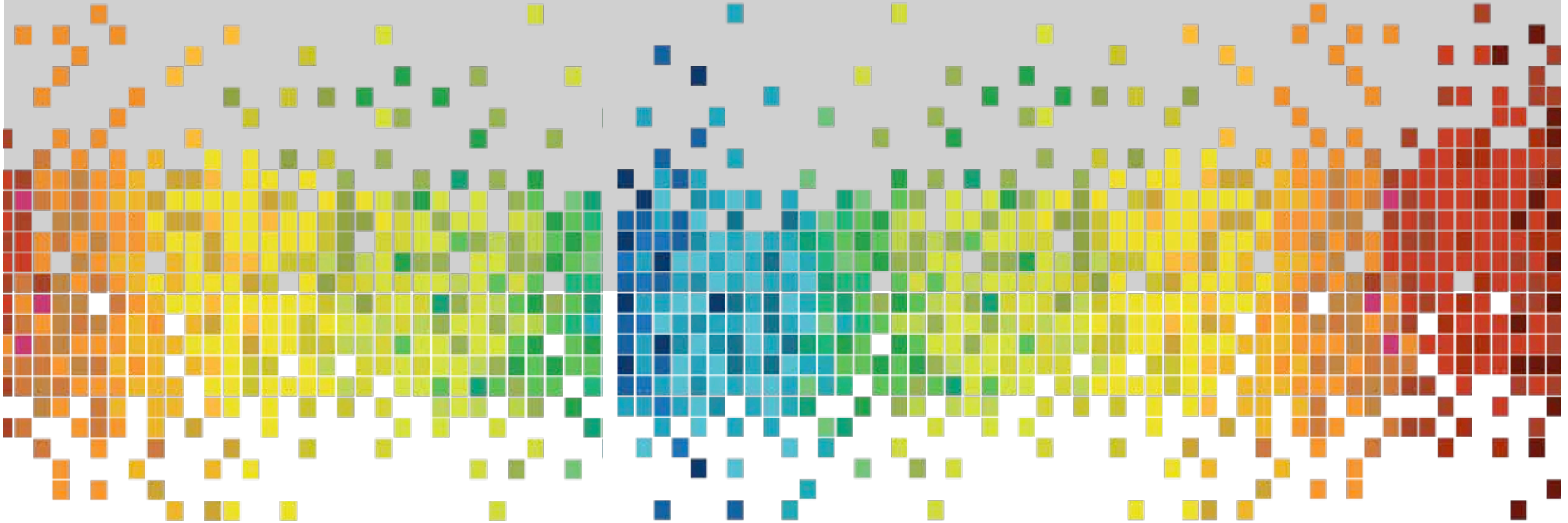
'Creating' would be broken down in three main areas: (1) creating with materials (e.g., paper, wood, razors, etc.); (2) creating with open source resources; and, (3) creating with digital components creative course (be resourceful in find the tools out there). The ethos driving this model is to teach students to be 'resourceful' and engage them in situations where people who have no previous experience with physical or digital materials can be tutored and helped to learn by their peers.

A second stage, possibly taking place in parallel, would be 'critiquing.' Critiques would be broken down in three main areas as well: (1) critiquing products (e.g., how they have been designed); (2) critiquing texts (e.g., books, articles, news, etc.): and, (3) critiquing general contexts (in this case students would focus on the relationships between technology and society and analyze the impact of technology on society from several perspectives).

While these activities are meant to be performed in groups, students would also have individual and longer-term projects. All analyses and designed artifacts would go in the final portfolio. Connected to the idea of creating and critiquing in dialogue with the others, are also the proposals to exhibit students' work, and to organize workshops where people from outside the faculty can come in and teach.

3. The Existential Model

This model emphasizes the theme of digital living, and proposes a structure of courses and activities organized in four big areas—each area reflecting a different facet of digital living.



According to this model, courses would be organized in four big areas of expertise about (digital) living.

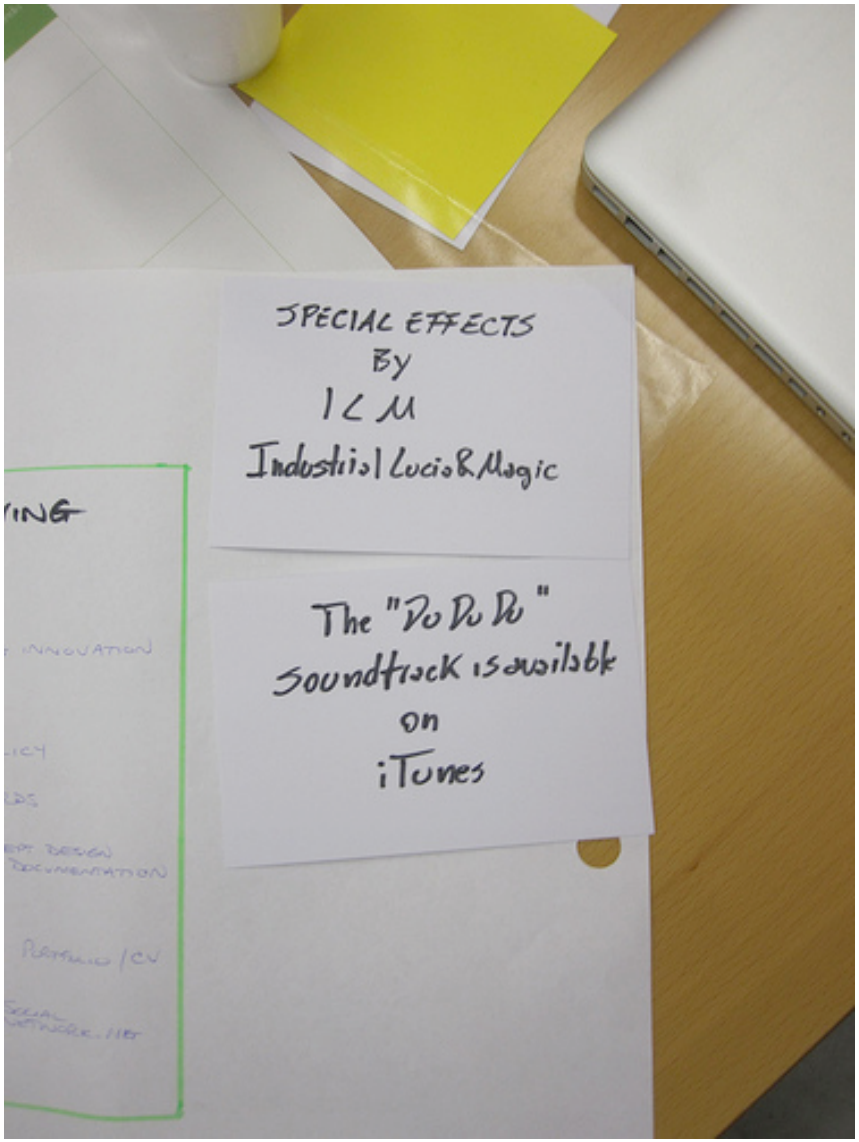
The first area would be (1) Characteristics of Living, which concerns what characterizes human existence and encourages students to be self-reflective about their own 'living.'

The second area would be (2) Transforming Living, where students get hands on and make prototypes, and acquire the active and programmatic skills, knowledge, and attitudes that are needed to transform living.

The third area would be (3) Business of Living, which teaches the skill sets, knowledge, and attitudes around, for example, project management and creating a business plan. This area of expertise is career-related, and concerns how to 'sell' a product as well your expertise.

The fourth area would be (4) Future of Living, which relates to innovation in the long term, and issues for example of sustainability or activism. This area concerns the skill sets, knowledge, and attitudes that you may want to acquire to go about being an activist or being a participant in the long future and in relation to foreseeable problems (e.g., global warming).

Within these areas is a mix of leveling and advanced courses. Each of them can be approached according to each student's unique



background and learning style. For example, the student might be an architect, and approach the course on 'space' from the production of changing space. But she might instead have a critical theory background, a more textual learning style, and thus approach the topic in terms of critical notions of space.

Linked to this is the idea that leveling and advanced courses could all be taken following either a practice-based or a theory-based approach, according to the background and learning style of the student. Connected is also the proposal to adhere to a pass/fail criterion for leveling courses and allow students to negotiate their deliverables in advanced courses.

This model is offered as a basis to reflect upon and organize the skill sets of the UC3M permanent and visiting faculty, and allow the contents and modalities of courses to change dynamically. See Appendix II for a detailed list of courses.

Appendix I: Balancing Theory and Practice

The need to balance theory and practice was a recurrent concern for participants. Although theoretical lectures are a necessity for a qualitative academic education, practice-based collaborative activities should form a large part of the DL Master. For example, more lecturing could be offered in the first year of the program, and more project work in the second year. This would also be the case for basic/advanced (or elective) classes. The result would be a balancing of the curriculum, with an increasing level of practice and specialization. Figure 1 and Figure 2 sum up and illustrate some of discussions that were held concerning how to balance theory and practice in the two years of the DL Master, as well as the flexibility of the curriculum and its depth.

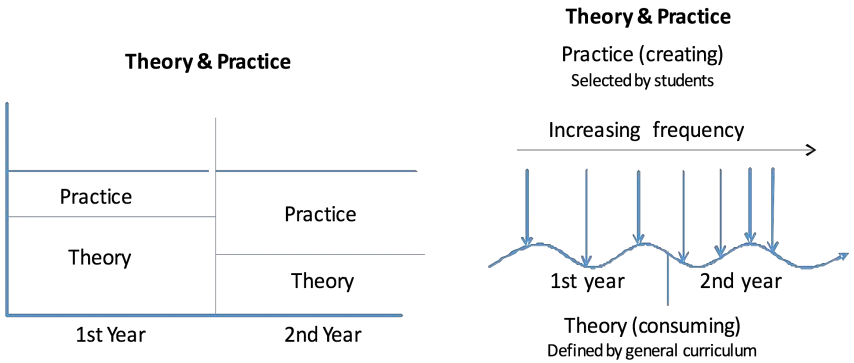


Figure 1
Balancing of the curriculum regarding theory vs. practice

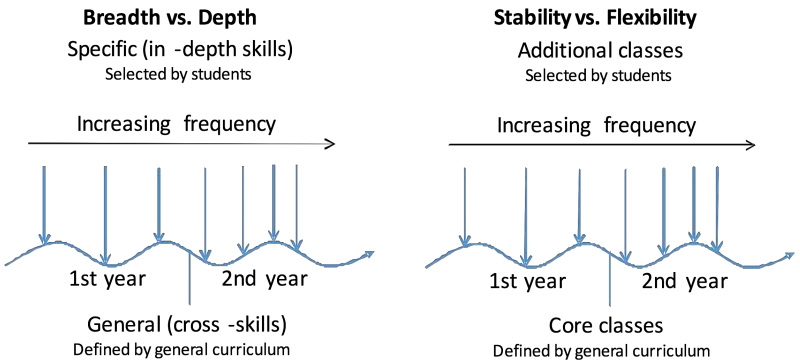


Figure 2:
Balancing of the curriculum regarding breadth vs. depth and stability vs. flexibility.

Appendix II: Envisioned Courses

Several courses were envisioned over the two days of the workshop, which relate to the recommendations and the models proposed in the report. We list here some of them as a sort of inspiration board, attempting a provisional distinction in foundational and elective courses.

Foundational

- Digital scholarship
- Human geographies
- History of digital technologies
- Design thinking
- Computational understanding
- Creative entrepreneurship
- Business economics and marketing
- Research and evaluation methods
- Media communication (soft skill)
- Project management (soft skill)
- Social networking (soft skill)

Electives

- Community engagement
- Participatory cultures
- Rapid prototyping

- Critical gaming
- Virtual organizations
- Sensorized environments
- Urban façades
- Elements of physical design
- Tangible computing
- Locative media
- Human-centered design
- Public-centered design
- Sensorial design
- Gift economy
- Business cases

We list separately the courses of the Existential Model:

1. Characteristics of (Digital) Living

- Embodiment
- Sociality
- Cultural contextuality
- Systems of representation
- Motivation
- Personality

- Learning styles
- Space

2. Business of (Digital) Living

- Legal, IPRS
- Ethical
- Policy
- Standards
- Social networking
- Project management
- Managing innovation
- Concept design documentation
- Presentation / portfolio

3. Transforming (Digital) Living

- Experience prototyping
- Storytelling
- Visualization techniques
- Game design
- Data lifecycles
- Manufacturing
- Design/evaluation methods

- Representation techniques (conceptual)
- Web technologies
- Performance

4. Future of (Digital) Living

- Envisioned & emerging technologies
- Sustainability
- Activism
- Information & software architecture (HTML5, IPV6)
- Trends reading (weak signals)
- Artist installations (visions of the future)

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